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# ABILITY TO UNDERSTAND THE NUTRITION VALUE INFORMATION LABEL STUDENTS OF ECONOMIC AND BUSINESS FACULTY IN MUHAMMADIYAH UNIVERSITY SURAKARTA

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## ABSTRACT

*Concern for health and nutrition of consumers is increasing. Information on nutrition facts on food labels becomes one of the focuses of consumer attention in food products. This is often associated with prevention of over nutrition or monitoring of nutritional status and health related non communicable diseases such as coronary heart disease, diabetes, hypertension, and obesity. The purpose of this study was to determine the ability to understand nutrition label on college students. This was an observational study. The respondents were 74 students of Faculty of Economic and Business, Universitas Muhammadiyah Surakarta, which were chosen using random sampling technique with the inclusion criteria were not on a diet and not smoking. Meanwhile, the exclusion criteria were vegetarian, athlete had high activity and had chronic disease. Ability to understand label data were measured using questionnaire. Most of the students belong to age group of 19 years (58,10%) and female gender category (71,6%). Most students (59,4%) had inability to understand nutrition label. Questions on the percentage of nutritional adequacy rates on nutritional value information, the understanding of % daily value (AKG) on food packaging, amount of nutrient when consuming one package and comparing products that has less carbohydrate content were the most missed questions answered by respondents. While the question which was correctly answered by respondents was the total amount of carbohydrates on the packaging (87,8%). The average ability to understand label score was 54,8 with standard deviation 14,06. The results showed that ability of students to understand nutrition labels was still low. It possible because there was another factors like price, taste and knowledge of the product that affected them when purchased food. It is suggested to give nutrition facts education in purchasing food products to the students and develop simpler but meaningful nutrition labeling to help consumers choosing healthier products.*

## INTRODUCTION

Public awareness of health and nutrition is increasing. Information on the nutritional value of the food label becomes one of the focuses of consumer attention to know the nutritional

content in food products. It is often associated with prevention of over nutrition or monitoring of nutritional status and health related non-communicable diseases such as coronary heart disease, diabetes, hypertension, and obesity (Herlina, et al., 2014).

Health status can be influenced by behavioral factors, where behavior can be caused either by knowledge and attitude (Notoatmodjo, 2012). Low nutritional knowledge will cause poor attitudes and behavior of food consumption which can lead to excess consumption and increase the risk to overweight (UNICEF, 1988). In Europe, North America, Australia, New Zealand and some countries in Asia, Africa, the Middle East, and Latin America have initiated regulations to decrease the prevalence of non-communicable diseases, including food labels especially the nutrition value information (Bonsmann and Wills, 2012; Mandle, Tugendhaft, Michalow, & Hofman, 2015).

One way of controlling non-communicable diseases is by practicing a healthy diet. Therefore, the nutrient content information of a food product is very beneficial for consumers to control their nutritional intake. In Indonesia, one of the points in the General Guidelines for Balanced Nutrition of 2014 is get used to read the label on food packaging (Kemenkes, 2014).

Food labels are expected to lead consumers to change the habit of shopping for food from unhealthy to healthy (Liu, et al., 2015). It is also useful to reduce the average daily calorie intake of total fats, saturated fats, cholesterol and sodium (Kim et al., 2000). However, it may affect consumer choice of food, only if consumers read labels (Drichoutis, Lazaradis and Nayga 2006). Based on the results of the study of the Indonesian National Consumer Protection Agency (BPKN), the food label still received less attention from consumers. Only 6.7% of consumers pay attention to the completeness of the food product label they buy. Sudahono and Indrawani (2014) found that the most widely read nutritional label component for students was total fat (54.5%), while the least read was sodium (11%). The percentage is considerable when compared to the percentage in the United States. The 2014 Food and Drug Administration (FDA) Dietary and Health Survey results, 77% of adults in the United States always use nutritional information labels when buying packaged food products.

Eating packaged foods by teenagers is commonplace. Almost every teenager consumes packaged food at least one pack a day with a range of one to seven packaged foods. Package

foods contribute daily energy to adolescents by 23% to 39% (Brown, et al., 2014). The results of Khory's research (2016) showed that most of the respondents (42.5%) liked to consume packets of biscuits and 5 chili / chips / light snacks (41,7%). Another supporting study was conducted by Suswanti (2012) on students who stated as much as (60,8%) like to consume packaged food. S1 students of the Faculty of Economics and Business class of 2016 included in the age range of adolescents who generally have a solid activity. They are mostly active in organizations or activities outside of college hours or on campus academic activities. This will have an impact on eating schedule irregularities and improve snacking habits or consume packaged foods.

## MATERIAL AND METHOD

This type of research is observational with a sample of 74 respondents selected by random sampling. Respondents are students from the Faculty of Economics and Business semester 3. The independent variable in this study is the ability to understand the information label of nutritional value. The ability to understand the nutritional value information label was obtained by filling out a questionnaire consisting of 20 questions by respondents. The questionnaire preparation phase includes identification of related domains through a literature review process.

Table 1. Grid of Questionnaire on Ability to Understand Nutrition Value Information Labels

| No | Concept | Item Number | Total |
|---|---|---|---|
| 1 | Percentage of AKG in the Nutrition Value Information Label | 1 | 1 |
| 2 | The earliest information on nutrition is included | 2 | 1 |
| 3 | Information that is not part of the nutritional value information | 3 | 1 |
| 4 | Calculation of total serving in packaging | 4 | 1 |
| 5 | The content of nutrients in the product | 5,6,7,11,12 | 5 |
| 6 | Percentage of AKG, if you consume one package | 8 | 1 |
| 7 | The amount of nutrients consumed, if you consume one package | 9,10,14,19 | 4 |
| 8 | The amount of nutrients consumed, if | 13 | 1 |

| | | | |
|---|---|---|---|
| | you consume two packs | | |
| 9 | Comparison of nutrients from two products | 15,16,17 | 3 |
| 10 | Serving in one package | 18 | 1 |
| 11 | The amount of nutrients consumed, if you consume half the packaging | 20 | 1 |

Furthermore, conducting an instrument test to test reliability by measuring the ability to understand the information label on nutritional value in 30 respondents whose characteristics were equivalent to the research respondents at the Faculty of Economics, Slamet Riyadi University. After testing the instrument, continued by doing a different item index to see the ability of a problem to distinguish the respondent's ability about something. Of the 30 questions in the instrument there are 20 items of reliable questions seen from the value of r 3 0.3. Then conduct an instrument reliability test to see the internal consistency of the instrument, obtained the Alpha Cronbach coefficient test of 0.876 which is very high

Questions used to determine the level of knowledge of respondents to the information label on nutritional value. Respondents will be categorized into three groups. This grouping is based on the number of correct answers (in the form of percentages) obtained by respondents when filling out the questionnaire. Respondents with less knowledge are respondents whose percentage of correct answers is <56%, respondents with sufficient knowledge are respondents whose percentage of correct answers is between 56-75% and respondents who have good knowledge are respondents whose percentage of correct answers is 76-100% (Arikunto, 2010) . This research has fulfilled the code of ethics from the Ethics Committee of the Faculty of Medicine, Universitas Muhammadiyah Surakarta No: 742 / B.1 / KEPK-FKUMS / X / 2017.

## RESULTS AND DISCUSSION

The Faculty of Economics and Business has three Study Programs namely Accounting, Management and Development Economics. Based on Table 2, most respondents were 19 years old (58.10%) and females (71.6%).

**Table 2. Distribution of Descriptive Statistics based on Age and Gender**

| Age (years) | Frequency | Percentage (%) |
|---|---|---|

| | | |
|---|---|---|
| 19 | 43 | 58.1 |
| 20 | 18 | 24.3 |
| 21 | 13 | 17.6 |
| Total | 74 | 100 |
| **Sex** | **Frequency** | **Percentage (%)** |
| Male | 21 | 28.4 |
| Female | 53 | 71.6 |
| Total | 74 | 100 |

Known distribution of descriptive statistics of respondents based on the ability to understand the label information on nutritional value labels, the average respondent has a knowledge value of 54.8 with a standard deviation of 14.06. It can be seen in Table 3 that there is a relatively large gap between the lowest and the highest scores on the ability to understand nutritional value information labels.

**Table 3. Distribution of Descriptive Statistics based on the Ability to Understand Nutritional Value Information Labels**

| Descriptive statistics | Ability to Understand Nutritional Value Information Labels |
|---|---|
| Mean ± SD | 54,8 ± 14,06 |
| Minimum Value | 20 |
| Maximum Value | 85 |

This study specifically discusses the knowledge of nutritional value information labels consisting of twenty questions. Data on the level of knowledge of respondents is shown in Table 4.

**Table 4. Distribution of Subjects according to the Ability to Understand Nutritional Value Information Labels**

| Knowledge level | Total (n) | Percentage (%) |
|---|---|---|
| Low | 42 | 56.7 |
| Sufficient | 29 | 39.1 |
| Good | 3 | 4.1 |
| Total | 74 | 100.0 |

Table 3 shows that the majority of respondents as much as 56.7% had a level of knowledge that was low about the label of information on nutritional value. The number of respondents who had a good level of knowledge was only 4.1%. Data regarding the number of

respondents who answered correctly on each question are in Table 4. Table 4 shows that the most answered questions correctly by respondents are question number 11, which is the question of the number of carbohydrates contained in each product presentation, as many as 65 respondents (87.84%). While the most answered questions that were incorrectly answered by the respondents were questions number 1, 8, 14 and 17, namely the question of the percentage reference of Nutrition Adequacy Rate (AKG), the percentage of AKG sodium in 1 product package A, the amount of sodium if consumed 1 product package B, and less carbohydrate content in 1 package, each as many as 60 respondents (18.92%).

**Table 4. Distribution of Subjects based to Ability to Answer the Questions**

| Questions | Number of Students answer correctly (n) | Percentage (%) |
|---|---|---|
| 1 | 14 | 18.92 |
| 2 | 32 | 43.24 |
| 3 | 43 | 58.11 |
| 4 | 59 | 79.73 |
| 5 | 59 | 79.73 |
| 6 | 59 | 79.73 |
| 7 | 61 | 82.43 |
| 8 | 14 | 18.92 |
| 9 | 39 | 52.70 |
| 10 | 44 | 59.46 |
| 11 | 65 | 87.84 |
| 12 | 57 | 77.03 |
| 13 | 45 | 60.81 |
| 14 | 14 | 18.92 |
| 15 | 23 | 31.08 |
| 16 | 44 | 59.46 |
| 17 | 14 | 18.92 |
| 18 | 56 | 75.68 |
| 19 | 18 | 24.32 |
| 20 | 52 | 70.27 |

If explored further, Table 4 shows that there are 8 questions where respondents who answered correctly were less than 56%. Question number 1 (reference percentage of

AKG/Indonesian Daily Value for total energy), number 2 (nutritional value of the main / initial listed), number 8 (percentage of AKG sodium in the Product A), number 9 (amount of fat in product A), number 14 (amount of sodium when consuming one Product B), number 15 (less energy between Product C and Product D), number 17 (less carbohydrates between Products C and Product D), number 19 (the amount of sugar in one drink package). Only 18.9% of respondents answered the question number 1 correctly. According to the Food and Drug Monitoring Agency No. 9 of 2016 concerning Reference to Nutrition Labels (ALG) in Chapter III of ALG Requirements Article 4 Paragraph 1 of ALG is calculated based on the average energy adequacy for the Indonesian population of 2150 kilocalories per person per day. Many respondents answered incorrectly, this could happen because respondents pay less attention when buying products or not many products use the new rules. Many food or beverage packaging producers still include the 2000 kCal of Daily Value on their products which can be one of the causes for many respondents unable to answer questions. There was 43.2% respondents who answered question no. 2 correctly. Like question no.1, there might be many respondents who were not accustomed to paying attention to the nutritional value information label when buying food. Question number 8 and 9, each question had the correct average score of 17.5 % and 54.1%, respectively. These questions are questions about calculation so that it requires rigor and ability to count. Many respondents who did not correctly answer might be caused by lack of accuracy in calculating. Questions number 14, 15, 17 and 19 each respondent has an average value that answers correctly at 13.5%; 31.08%; 14.8% and 22.9%. To answer this question, it is necessary to understand and be careful in viewing the information label on nutritional value. However, there were still many respondents who could not answer correctly because they might not careful in looking at the question. Consumers need to understand the weight and names of nutrients in understanding the details in the information section on nutritional value in food or beverage packaging, calculating how many servings are in one package and integrating them in the broader context of how much is consumed every day. This calculation requires skills in counting, managing time and motivation.

Based on the data collection process, it was found that respondents tended to be less able to distinguish between one dish and one package. Respondents assume that a single package can

be interpreted as one serving, while food or beverage products in one package can have one or more servings. Mcllveen et al (2002) found that information labels on nutritional values were not used because they did not know how to interpret the information listed and they did not want to know it.

Research on the level of understanding of adolescent students regarding the label of food products in 1294 teenagers by Giatalkins and Chryssochoidis (2006) shows that they tend to pay attention to labels about expiration compared to nutritional value information. Research conducted on teenagers in Surakarta shows that only 2 of 169 respondents who had good knowledge and most of them did not pay too much attention to the nutritional value listed (Kurnia, Wardhani and Hariyani, 2016).

Based on these reasons, it is assumed that the respondent's ability to interpret information and the lack of interest in the information label on nutritional value can be the cause of the low ability to read information labels on nutritional value. Nelson's research, et al (2014) added that those who spent more time looking at nutritional value information labels in one shopping trip ended up not choosing nutritious foods. There is also a need to develop a better form of nutrition labeling that is capturing consumer attention, simpler and meaningful information, not to mention easy to understand for consumer to choose the healthier products 2</sup>.

## CONCLUSION

Respondents had an average level of knowledge of 54.8 with a standard deviation of 14.06. The lowest level of knowledge is 20 and the highest is 85. As many as 59.4% respondents had low ability to understand the nutritional value information label in the low category, while only few of them has good ability. It possible because there was another factors like price, taste and knowledge of the product that affected them when purchased food. It is suggested to give nutrition facts education in purchasing food products to the students and develop simpler but meaningful nutrition labeling to help consumers choosing healthier products.